Player Perspectives to Unexplained Agency-Related Incoherence

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Abstract. Anachrony in game stories causes incoherence, if the player's actions cause a future that differs considerably from the one already presented. Such game story quirk, if not addressed by design, causes an occurrence of unexplained agency-related incoherence (UARI). Current game studies literature views the issue as problematic. To study the significance and meaning of UARI to players, both anachronic and linear UARI-featuring games were developed. A grounded theory on the topic was devised upon 20 player accounts. Three main perspectives to UARI were identified: With anachrony, an acceptive-ludic perspective views the UARI as inevitable and natural. With both anachronic and linear game stories, an acceptive-diegetic perspective views the UARI as part of the story. With both anachronic and linear game stories, a rejective-logical perspective views the UARI as an unacceptable error in the game's causality.

Keywords: anachrony, coherence, game design, games, incoherence, story

1 Introduction

Anachrony, the non-linear *order* in narrative chronology [1, p. 11], is an interesting narrative technique in literature and film. Examples of anachrony in games are direct time manipulation in *Braid* [2], imaginary retrospective sequences in *Batman: Arkham Asylum* [3], and the interactive flashback in *Heavy Rain* [4]. Anachrony provides an avenue to postmodernist expression within game stories, as seen in movies such as *Memento* [5], and in other so-called *puzzle films* [6] that represent complex storytelling.

Anachronic game design implies problems for game story *coherence* [7]. An interactive *analepsis* [1, p. 40] potentiates the introduction of *incoherence* into the game's story, if the course of the previously experienced future is changed by the player within the interactive past events. This type of incoherence, where the player's action does not produce a logical result in the next phase of the story, is referred to in this paper as *unexplained agency-related incoherence* (UARI). Currently in anachronic story-based games, UARI occurrences are generally avoided by design. For example, in the interactive flashback of *Heavy Rain,* it is impossible to change the future.

In the literature, anachronic game design is generally viewed as problematic due to UARI. Juul prominently noted it as a problem that hinders anachronic game design [8, para. 41][9, para. 20]. Majewski [10, p. 25-26, 46, 51] and Wilhelmsson [11, p. 64] agree. Others, such as Jenkins [12, p. 127], Arsenault [13, p. 43], Pinchbeck [14, p. 51] and Calleja [15, p. 115] criticize Juul's notions, reminding that game stories often

visit the past. Some narrative design strategies maintain story coherence in interactive analepses, such as Guy and Champagnant's Uchronia [16], Harris's proactive mediation [17], along with Shyba's and Parker's post-modern game experiment [18]. For Ryan, anachrony does not seem to fit into IF [19, para. 40]. Accordingly, the InStory interactive narrative platform excluded proper interactive analepses [20, p. 88]. The games literature (for example [21][22, p. 4][23, para 15]) also generally assumes the implicit position that the coherence of game stories is important for players and that it should be maintained. However, studies that demonstrate this are either rare or nonexistent. Nevertheless, outside of games, unexplained incoherence manifests as a narrative element, as in Lynch's *Lost Highway* [24], meeting wide audience acceptance.

To provide insight into both the suitability of anachrony in games, and the role of coherence in game stories, we explored the following questions: How do players perceive UARI? How important is the coherence of game story to players? What emotions does UARI evoke? Would players prefer UARI to be removed? For the study, we developed games featuring linear and reversed chronologies, and possibilities for UARI occurrences. The games were played by 20 Ps (participants), and the interview data was analyzed by grounded theory principles.

2 Methods

2.1 Requirements for the first testbed game

The first testbed game was developed to fulfill the following requirements that were based on our assessment of the inquiry and the subject area:

1 *An engrossing* [25, p. 1299] *audiovisual presentation, story and setting*.
2 *Sufficient usability and playability* [26][27, p. 53] to prevent any external dissatisfaction from distorting the UARI perceptions.
3 *The world presented should be mimetic* [28] and not *abstract* [29], for the UARI to not be interpreted as an abstraction of the story.
4 *First person perspective*. This is the most mimetic view perspective available.
5 *Story-based*, for the player to concentrate on story events.
6 *Reversed and linear chronology versions* to gain information about UARI perceptions in both scenarios.
7 *Scene-based chronology*. The chronology jumps take place on scene-level.
8 *Possibilities for UARI*. The game should facilitate incoherencies due to player activity, and not give any explanations.

2.2 Description of the first testbed game

The first testbed game, referred to here as *the mysterious game*, is a short game, playable in 5 to 10 minutes. It has an eerie lighting setting with gloomy hallways and rooms, and a disturbing soundtrack. The character dialogues expressed a situation of uncertainty for the protagonist's mental health. The purpose of this atmosphere was to engage the players with the story. The game provides only one UARI possibility, which we reasoned initially to keep the study simple and manageable. The UARI is severe; the death of a notable character in the story.

In the chronologically first scene the protagonist can kill a game character. In the chronologically second and last scene, the same character always arrives at the protagonist's doorstep for a conversation, which results in UARI, if he was killed. Both linear and anachronic versions were prepared. The passage of time between the scenes was indicated by an intermittent text: “Some time later”, or “Some time earlier”, respectively. The game was subjected to a preliminary testing procedure before the actual testing to iteratively develop the game's developmental quality, usability and playability to a sufficient level.

2.3 Motivation and requirements for the second testbed game

With the first game, all Ps interpreted UARI as a mysterious event in the story, in both chronological versions. None regarded it as, for example, a story glitch. This motivated us to build another game to record possible different perceptions of UARI, with the following adjustments to the existing requirements:

1 *A more casual, everyday-atmosphere*. We interpreted that in most cases, the UARI was considered as part of the story due to the implied mystery/horror genre, where inexplicable events are common tropes.

2 *The story should be longer and complete, with a clear ending*. Many Ps considered the mysterious game as an epilogue for a longer story, where the incoherence would be explained.

3 *More UARI possibilities, varying severities*. In the mysterious game, Ps frequently noted that a single salient event as the notable character's reanimation would likely be intentional, suggesting us to try multiple UARIs with varying *severities*. As an example of severity, a dead character’s reappearance is severely incoherent, whilst a broken background item being fixed is less so.

2.4 Description of the second testbed game

The second game, referred to here as *the casual game,* was designed to fulfill the first and the additional requirements. The casual game has a longer, complete story, and a less eerie everyday-atmosphere, however with some drama in the plot. The game is based on an urban every-day setting. The protagonist is Karen, a depressed female office worker. The game facilitated 4 UARIs, and features 5 scenes and an ending screen, as described below:

1. Karen is working at her office, discussing with a colleague, when she hears that a serial killer is terrorizing her neighborhood. In a bout of depression, Karen can jump out of a high window.
2. Karen is at the office coffee room; a high-severity UARI, if the window was jumped. Here Karen meets John, a colleague, who asks her for an after-hours drink.
3. Karen is escorted to her apartment by John from a bar; a medium-severity UARI, if Karen refused John’s request. Karen is appalled at a romantic TV show, and can angrily break the TV.
4. Karen is at a coffee shop. She meets her ex-friend Judith. Karen can scold Judith for the past, or re-establish the friendship.
5. Karen is at her home. John will arrive at her door, asking her for a dinner. The intact TV facilitates a modest-severity UARI. Judith calls, rejoicing the renewed friendship via telephone; a medium-severity UARI, if she was scolded.
6. The ending screen shows a newspaper that describes either Karen’s murder or the arrest of the serial killer.

The different dialogue options in the game result in different endings, adding replay value. Audiovisually the game features bright lights, stylized shapes and colors, and a jazzy, light-hearted soundtrack. Linear and reversed chronological versions were developed, with the newspaper screen always concluding the game. Time progression is indicated textually between the scenes. The casual game managed to yield various UARI perceptions among the Ps, as discussed further.

Fig. 1. The mysterious game (left) and the casual game (right)

2.5 The participant protocol

Our user study was designed following Creswell's suggestions [30]. 20 gamers, aged between 17-33, participated. The gender division was 17 males and three females. The division of Ps per game was: linear mysterious (LM) 4, reversed mysterious (RM) 5, linear casual (LC) 5, reversed casual (RC) 8. This amounts to 22, because one P, as an explorative account, played LC, RC and RM in this order. The Ps were requested to openly discuss their thoughts during play. Multiple playthroughs were necessary. The Ps were interviewed after each playthrough, and sometimes freshly upon encountering UARI occurrences. The interviews were semi-structured; the P was requested to recall the game's story. Open-ended, neutral questions were asked about the mentioned UARIs. The study data consisted of 26 hours of audio recordings, of which 290 pages were transcribed.

2.6 Research and data analysis with grounded theory

Strauss's and Corbin's [31] grounded theory (GT) was chosen as a suitable qualitative data analysis methodology according to Creswell's guidelines [32]. In GT, the role of the initial literature review diminishes and the subsequent interviews lengthen as *theoretical sampling questions* [31, p. 201-216] amount and lead the inquiry to new directions. A constant analysis of data evokes these questions, developing the inquiry itself.

We conducted the data analysis according to the three major GT steps: a) *Open coding*; an overall review and codification [31, p. 101-122]. b) *Axial coding*; forming the theoretical connections [31, p. 123-142]. c) *Selective coding*; integration and

refinement of the theory [31, p. 146-162]. We sought to, as is the aim in grounded theory research, to not simply to list categories of encountered phenomena, but to discover the interrelationships and dynamics in the context to obtain qualitative explanations for the reasons behind the phenomena [31, p. 142]. Hence, we sought to build a *theory*.

3 Results - A grounded theory on player perspectives to UARI

According to our theory, based on our data analysis, a player's notion of UARI induces one or more *hypotheses* of the UARI's *purpose* in the player. As each hypothesis is accompanied by either an *acceptive* or a *rejective* attitude towards the occurrence, we refer to them as *attitudinal perspectives* (AP). The player's most plausible hypothesis is the *main* AP. AP formation depends on the game's chronology, and is co-factored by the player's traits. Contextual criteria evaluated when forming the AP include subjectively perceived properties of the game and the UARI, such as the genre of fiction implied, and the plausibility of defectiveness. This study found three distinct APs to UARI.

3.1 Acceptive-ludic

The *acceptive-ludic* attitudinal perspective (ALAP) views UARI as an inevitable and acceptable result of anachronic game design. From this perspective, causality in the game story is not broken, but reconfigured.

This AP occurred with the reversed casual (RC) game only, and was the main AP for 5/8 Ps who played the RC. The following is a descriptive excerpt: "It is again a tip about … the right order for things … to get the story 'correct', so to say. Then again, it evokes the thought, whether that is the point, or is it to solve it and avoid the death of the protagonist." Here, the P was pondering whether the future in the game was to be reproduced, meaning that the UARIs would have represented a 'failed' course of events, or if the future should be changed. It is relevant to note that in the RC game, the future situation's reproduction or prevention was not something specifically designed as an intentional game mechanic. However, as the game did not inform players about any 'correct' way to play, this was something that the ALAP Ps hypothesized the game's victory condition to depend upon.

ALAP players are initially *confused* and *baffled* by UARI's meaning, then *intrigued*, *puzzled* and *cogitative* by the solution possibilities. The perceived ability to affect the game's causal chain induces a sense of *empowerment*. ALAP players do not think of UARI as an unacceptable inconsistency in need of re-design.

For the severest UARI (Window), the Ps with mostly ALAP accounts had additional story-based (ADAP) and rejective (RLAP) hypotheses, which conveys that all players seek a certain level of overall plausibility for game events.

Co-factor: A lusory attitude. The ALAP players approach the anachronic game with a *lusory attitude*, a term conceived by Suits [33 p. 54-55]. The ALAP players accept anachrony as the structure of the game system, as one ALAP P (RC) expressed: "It (causality) does not break, it just goes to another direction. … it is a game rule that has to be accepted." Thus, ALAP players accept UARI as the rule's implication, and see the hypothesized underlying system as an interesting challenge. For them, game logic becomes the primary concern, and story logic remains secondary.

Contextual Criterion: Acceptability as a byproduct of game mechanics. UARI is justifiable, when the game story progresses *backwards*. To quote an ALAP P: "If it would've been linear, then it would have bothered me, because it would not have made sense linearly. However, because you go backwards, it creates a puzzle feel to it, Making it ok. … if you want to make a game that goes backwards, you have to sacrifice such things (story logic) … for the player to have options"

Contextual criterion: Implausibility of erroneousness. The ALAP Ps perceived that despite rough edges in the RC game, its general functionality was not defective. Thus, the ALAP players did not have any weighty affirmation of the UARI as a developmental deficiency, as much as they trusted it to be intentional and necessary. This was in contrast with the RLAP notions discussed later.

3.2 Acceptive-diegetic

The *acceptive-diegetic* (ADAP) players accept the UARI as an occurrence that can be plausibly explained, or has happened due to events not shown to the player. It occurred with all games. It was the main AP for 4/4 Ps with LM, 5/5 Ps with RM, 2/5 Ps with LC, and 1/8 Ps with RC. An example follows (LM): "If you stab him, you presume he is dead. … So, either it did not happen, or it is not the same guy. There is the possibility that he has only been dreaming. … As a fan of the supernatural and mystical, there is always … the tinfoil hat scenario with space aliens, or a mystical scenario." In this study, the most common ADAP UARI hypotheses were as above; psychological scenarios such as an unreliable experience (f.ex. dream, madness), and supernatural explanations. In the casual game, the less severe UARIs gathered mundane hypotheses, such as the broken TV having been replaced.

The ADAP players are first *confused* and *baffled* by UARI. Then, *interested*, *intrigued* and *puzzled* by the UARI's meaning in the story. One ADAP P (LM) was *neutral*: "I am used to tackling narrative inconsistencies analytically." ADAP players accept UARI as an intriguing property of the story. However, they are interested in possible explanations for the events.

For the mainly ADAP Ps, the Window UARI caused the most confusion, intrigue, and corresponding emotions.

Co-factor: Acquaintance with incoherence-permitting genres. A co-factor for forming the ADAP is the player's preference or close familiarity with genres where incoherence could be regarded as a narrative device. Such player has a tendency to choose to interpret the UARI to belong to and enrichen the story experience. One P (LM) explained: "Perhaps it's more about wanting to think that it (the game) would be done logically after all. … then if it does eventually go into that kind of direction, it would be much more interesting to play. … You would be inside the story since the beginning. Otherwise you might have missed a lot of the atmosphere (if one regarded the UARIs as errors)."

Contextual Criterion: Implied incoherence-permitting genre. Certain properties in the game's diegetic setting and atmosphere can *imply an incoherence-permitting genre* such as mystery fiction, which, in addition to the preference or acquaintance with such genres can evoke the ADAP perspective to UARI. The mysterious game was perceived to represent the horror and mystery genres by all Ps. With the casual game, the UARI itself created a delusional atmosphere.

Contextual criterion: Implausibility of erroneousness. As for the ALAP, *implausibility of erroneousness* was a co-factor here. A pointer to this conclusion with

the mysterious game was the sparsity of other significant events: “Well, it’s quite a crucial bug, so I’d say that you would have eliminated that bug … the amnesia or insanity explanation are much more likely.” ADAP Ps gave the games the benefit of the doubt, as they noted that the UARIs, as errors, would have represented an unlikely weak game design. They also expected the UARIs to be eventually explained in some cases by explorable narrative elements, or by a sequel. In the mundane ADAP explanation cases, the less severe the UARI was, it was more likely imagined a plausible explanation for rather than hypothesized to represent an error (RLAP).

3.3 Rejective-logical

The *rejective-logical* (RLAP) players view the UARI as an error in the game world's causal logic, and in the coherence of its narrative elements. This AP occurred with both versions of the casual game. It was the main AP for 3/5 Ps with the LC, and 2/8 Ps with the RC. An example (LC) follows: “P: First I tried to commit suicide. … Then I was all of a sudden in the cafeteria. … I: What emotions did that evoke? P: I thought it was a mistake. … Perhaps I was expecting for some kind of explanation for why she was there suddenly. … I: Were you annoyed by getting no explanation? I: Yes. I thought it was a bug, because I got nothing.”

The RLAP players, in contrast to the ALAP and ADAP players, are not confused or intrigued by UARI, but unimpressed. They might remain *neutral*. However, a common emotion is *annoyment* by the perceived error, and *disempoverment* due to perceived limited diegetic agency. RLAP players dislike UARI and prefer to have it corrected or explained. The Window UARI was the worst offender for the RLAP Ps.

Co-factor: A requirement of diegetic causality. A co-factoring trait for RLAP players is a pronounced sense of respect for diegetic causality, due to which they dislike and disapprove behaviors contrary to the assumed norms of the game world’s logic and causality: “I really hate those kinds of inconsistencies.” (RC)

Co-factor: Disapproval of arbitrary agency constraints. The RLAP players, in addition to opposing illogical game world behaviors, disapprove any constraints for agency that seem arbitrary. In the linear chronology case, they perceive UARI to irrationally restrict their power in the game world, leading to frustration and indifference: “it feels a bit like … nothing I do has any effect here.” (LC)

Contextual criterion: Implied incoherence-incompatible genre. The RLAP players do not see such incoherence to fit the genre they interpret the game to represent, as one P (LC) noted: “P: Usually if you jump from a window, you die (laughs). I: In the real world? P: Yes. I: But, wasn’t this a game? P: Yes, but it was, or at least I thought it was a realistic game. … There was nothing out of the ordinary. It seemed like everyday life. At least there was nothing pointing to it not being so”

Contextual criterion: Plausibility of erroneousness. In the games of the study, UARI was caused by choices having no effect in the chronologically subsequent scene, which the RLAP Ps saw as erroneous. In the LC game, this perception was pronounced, as UARI had no particular acceptability as a byproduct of the game design paradigm as with reversed chronology. The casual game’s developmental level was seen as fair in general, but the RLAP Ps found the developmental quality slightly lacking, which further increased the error interpretation’s plausibility for them.

4 Discussion, future work and suggestions for game design

4.1 On game story coherence

When discussing coherence in games context, it is relevant first to address the object the coherence of which is discussed. With games, 'narrative' is a problematic term [34][8, para. 41][9, para. 7]. Thus, we discuss *game stories,* the mental sequences of events that the players construct of the game experience, when discussing coherence. In this study, the Ps' chronological, sequential descriptions of game events, when asked to narrate their game experiences, gave evidence of such constructions: "P: First I tried suicide. … Then I was in the cafeteria all of a sudden. … Then the John guy came to talk with me, and asked me for a date, and I refused it." This corresponds to the construction of *fabula* from film viewing [35]. Narratological concepts apply well to the preconfiguration of the diegetic game world [36, para. 49], but not to the event of play [8, para. 41].

Mere sequential recallability is, however, not sufficient to describe the interrelatedness of meaning that story compherenders arguably construe. Thus, cognitive narratologists have theorized that narrative readers form *referential situation models* [37]: "A situation model is a mental representation of the people, setting, actions and events that are mentioned in explicit clauses" [37, p. 371] Additionally, for the information that is not explicitly mentioned, the reader fills the story gaps by constructing inferences of the other information given, such as "The goals and plans that motivate character's actions" [37, p. 371] in order to achieve local and global story coherence [38, p. 6]. In this study, ADAP accounts gave evidence that players build such models, and fill story gaps. For example, one P (LC) inferred that Judith's positive phone call tone could be untruthful: "I was in disbelief and confusion. I didn't know what she was talking about. Did she think it (getting coffee spilled over her) was funny? Also, could she be lying?"

This voluntary conception of explanations to maintain the plausibility of the experience is, in Coleridgean terms, a form of *willing suspension of disbelief* [39] targeted, if not at the fictional status of the experience itself, at the inconsistencies of the game's story. Karhulahti argues that the additional aspect of simulation in video games demands for a *suspension of virtual disbelief* [40].

Unjustified UARI appears to break immersion. One P, who played the linear casual game, explained: "It feels a bit like … nothing I do has any effect here. Then, either I don't quite want to do anything, as nothing makes sense, or I might just lose control and trash everything. … If many things occur in a game inconsistently with how things occur in real life, it creates a gap between the player and the game. ... If people behave totally differently than in real life, it looks stupid. It is no longer fun, no longer believable … Eventually, it will just be a game that I am playing, but I do not experience identifying with the story and living it" This appeared gap between the player and the game represents an overt *psychical distance*, as Bullough describes [41, para. 27]. This loss of experiential coherence potentially leads to *virtual insanity,* a detachment from the virtual reality, manifesting for example by violent or experimental behavior in the virtual world for the player's amusement, disregarding any implied diegetic behavioral norms.

The significance of this study lies in its position among the first explorations to the value and meaning of game story coherence to players' game experiences. The study shows that in general, players require and strive for a coherent understanding of their game experiences holistically, and not only to be able to parse a coherent story. In particular, players necessitate either a fully coherent story by filling the gaps by themselves if needed, or justifiability for story incoherence by genre tropes or by the

interference of game mechanics. Thus, the current prevalent implicit position in the literature that game story coherence is always necessary (as for example in [21][22, p. 4][23, para. 15]) has been compromised by the study.

This study focused on unexplained incoherence, related to the player's activity. However, unexplained incoherence, unrelated to player activity can also occur. The significance and meaning of such incoherence to players should be likewise studied to elaborate further on the topic of game story coherence.

Players' mental situational game story model construction along with the strategical and behavioral planning of future actions, and the filling of story gaps by inference using the surrounding story elements warrant further research.

The games with which coherence was studied were fairly mimetic; the significance of story coherence in more abstract games should be comparatively explored.

Various other scenarios to study UARI responses in exist. Perhaps players are not as apt to form the ALAP or ADAP perspectives to UARI, if a vast game only contains one or few UARIs. This could be studied in the future also.

4.2 On the viability of anachrony in game stories

The game studies literature in general sees the use of anachrony in games and interactive stories as problematic due to UARI [8][9][10][11]. The implied underlying presentiment is that the game experience would suffer when story coherence would be lost due to incoherence-inducing actions. This study alleviates these concerns. Firstly, one must note that UARI possibilities can be removed from anachronic games, as seen in [16][17][18]. This can be achieved by omitting the UARI-facilitating events from happening, or by explaining the events afterwards (for example by a dream/illusion scenario). Secondly, UARI in anachronic games is by no means automatically a nuisance to players, as in this study, 11/13 players of anachronic games found UARI as an intriguing element, perceiving it as part of the gameplay or the story.

There are no reasonable arguments for excluding anachrony from game stories, and it should be utilized freely. Additionally, anachronic UARI needs not always be prevented. Various anachronic game design scenarios can be imagined, with UARI as an intentional game design element, and not simply as a side-effect of anachrony (which players accept also). For example, such a game could present time paradoxes, changing the future, or puzzles to reproduce future situations in the past. Alternatively, it could represent an element in the story with a peculiar significance. As the results of the study show, there will be an audience for such creations, provided that the game has sufficient production values. Some information of the game's design intentions should be conveyed, however, as unwarranted story incoherence can break the immersion for certain players.

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